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May 2016

Online at <https://mpra.ub.uni-muenchen.de/73142/>

MPRA Paper No. 73142, posted 22 August 2016 23:21 UTC

THE ROLE OF PLANTS ON THE IMPACT OF CULTURAL AND HISTORICAL MONUMENTS

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We suggest you to cite this article as:

Galev, E., Gurkova, M., Nikolay, G. (2016) The role of plants on the impact of cultural and historical monuments. *Junior Scientific Researcher*, Vol II, No. 1, pp. 1-15.

Abstract

Visual impact of cultural and historical monuments determined by surrounding plants is the focus of discussion in the paper. Their influence on passengers and onlookers sidelong roadways and trails is described in detail. A great number of practical examples have been examined with the purpose of drawing some general conclusions from this problem to the advantage of landscape design practice. The result of the analysis shows a considerable role of vegetation in visual impact of monuments over the observers. Using color photographs and observations from a number of different positions for a lot of monuments and memorials the survey concludes that from the standpoint of aesthetic value or attractiveness the vegetation often plays a leading role. It is not a detailed study of compositional principles for the formation of spaces around the monuments, but demonstrates the complexity of the problem and gave some results in addition to the theoretical foundations in this respect. Although the scenic beauty metrics are quite debatable and controversial case it is hoped that the conclusions of this paper will facilitate needed discussion on vegetation appropriateness and usefulness in monument's landscape design.

Keywords: monuments, memorials, visual impact, vegetation, aesthetics, tourists.

JEL Classification: Q000, Z320

Introduction

The monuments and memorials are attractive landscape fragments and are often the main focus in the observation. Most of them are surrounded by vegetation. This paper should be read as an attempt to clarify some arguments in conjunction with the question "What role do plants play in visual impact of cultural and historical monuments?". It aim is not to give specific guidelines for design of the monuments, but only to highlight the key factors for monuments' vision, which are determined by surrounding plants.

Background

Cultural and historical monuments are very important elements of heritage in every country in the world. Many of them, such as memorials and architectural structures that serve to perpetuate famous historical people and events are arranged with tree, shrub and herbaceous vegetation. The same can be said for some buildings and abstract sculptures. In all these cases, the vegetation plays a particular role that is much more

important than its role without the object of heritage. The vegetation, especially trees around the monuments are integral components of cultural landscapes. These trees are important historical symbols and features too. They are mostly located at sides or intersections of roads, in streets, squares and in the open spaces and are important cultural heritage and historical legacy in the landscape. The monuments are often set in impressive landscape sceneries as marked features and are usually accompanied by one or more trees. The architecture and the tree(s) form a specific pair of monuments, which combines natural, cultural and historical values. (Toth, A., 2016).

Stoycheva and Tzolova (2001) have tried to identify the specific preferences of the people and their criteria for picturesqueness and attractiveness of the landscape "paintings". It can be said that in Bulgaria there is a theoretical vacuum in this case, but current research and practical developments give hope for successful and positive developments of this problem. This study seeks to determine how exactly the vegetation generates the attractiveness of the monuments and memorials, and in which circumstances it increase or decrease their visual impact.

According to Helliwell (1984) aesthetics assessment is individual and depends on personal taste and experience of the observer, but there are some basic rules for unity in the composition that have survived from ancient Greece. He believes that the lack of unity in the face of deteriorating quality of its landscape, because scattered and unrelated elements, bring confusion in visual perception. Disparate elements also create confusing diversity and viewed within seconds while they create an unpleasant visual impression. The design according the author has three stages: creation of a balanced landscape with simple forms, combining elements and arrangement of plants in accordance with the environment without occasional contrasts of colors, shapes and habit.

Seung-Bin (1984) develops a scientific approach to the use of visual preferences of people in urban design. In the method applied by him called "assessment the beauty of the view", core elements that form people's preferences are the slope of the terrain, the vertical impact of building volume and degree of plant coverage.

According to the majority of authors most impact on human perceptions have shaped and sized forming plants that form the landscapes. They create a general impression, but mainly in the detail are essential contours, colors, scents and even sounds that are characteristic of the vegetation. There have also been made numerous surveys. Ulrich (1986) explores such psychological reactions in human comprehension of vegetation in the landscape and found that trees with thick stems and crowns are perceived positively by the observer, while those with thin stems and crowns developed only create bad feelings. Same opinion supports Brivot (1982), regarding "... mighty old trees, their crowns are spread of tens of meters and attracts their shade in summer, while the effect of the game of light and shadow in their crown is an outstanding ...". There have been shown particularly spectacular specimens of various types, including forms of weeping beech. General rule the author is that the viewer should be given the opportunity to fully enjoy the magnificence of old trees, so they advised to leave in small groups where they can be the dominant element, and before them in all cases have a large open area. Veer (1986) considered "valuable vision" that all wood specimens are distinguished from others by highlighting the qualities decorated (mostly habit and beautiful crown) and the mapping out of 210,000 trees. Lewis (1973) and Sorensen (1982) highlight the decorative features of the bark of trees. Barely noticeable in other seasons, larval bark of trees is a major decorative element after defoliation in winter and especially in the morning and in the evening if sunbeams fall below lower angle and directly illuminate the tree trunks.

The number of species whose bark is quite impressive is significant. Especially rich in this respect is a kind of *Betula*. Its representatives are suitable for almost all soils and climatic regions, making them versatile element in the landscape. White Pine is also mentioned as a species with spectacular bark. Stoycheva and Kabatliyska (2002) attempted to identify the total number of colors in the landscape that are seen by most visitors. Kouneva et al. (2009) have focused in their research mainly on the yellow hues of the vegetation in the landscape, describing a number of plants and their blooms during the period of performance, especially when planted in lit places. In the study of Breton (1981) has been investigated in more detail the issue of the nuance of the autumn wood-bush vegetation. They considered that a number of deciduous species in autumn become with extremely beautiful color of their leaves. These include beech and aspen, which are indigenous species in mountain regions and this gives reason to consider enhancing their participation in the outskirts of pure conifer plantations. Another possibility to diversify the periphery of the array is the planting of flowering tree species. Stoycheva and Tzolova (2001) estimated high beauty and diversity resulting from the spring flowering trees and shrubs in the forest landscape. The same notes Kabatliyska (2007) determining that people are not impressed by some of the colors that make up the natural background in parks or in the landscape, namely blue, green and brown. Emotional impact of the white color of flowering trees and shrubs depends on surrounding objects. This impact is positive when it is white in combination with pale colors, but with bright and dark colors, it manifests itself in strong and striking contrasts that can cause fatigue. White colors on cloudy days make the landscapes more bright and pleasant. Another source of vivid effects in the landscape have the fruit colors of ornamental trees and shrubs. This aspect was studied by Vandeveld-Dassonville (1982). She described many species, some of which are frost-resistant and could be used in the mountain areas. Among these series of publications dealing with differentiated sensory feelings of people for the landscape should be mentioned and that of Quellet (1982). It indicates a favorable impact on human health and spirits, which have aromas emanating from certain trees, shrubs, grasses and flowers. There exist conditions for the development of so-called "aroma" as part of the phytotherapy.

Significant theoretical contribution to the development of the issue of visual assessment of the landscape is the study of Kurbatov (1988). He structured a set of visual characteristics and created a system of six indicators for evaluation including: size and size scale; canopy; configuration, visual barriers, visual magic tricks. Visual perception of the landscape by the author is a function of the plastic structure of the terrain and vegetation.

The Directives in respect of forest landscape design developed by the Forestry Commission (1994) recommended the design process to start with an assessment of the landscape as the main criterion to be visible, and those sectors which can be seen from most locations receive the highest score.

In the method of Shafer et al. (1969, 1977) for determining psychophysical preferences of people towards landscape key indicators are perimeter and area of distribution of its features, and more precisely - the correlations between these variables. A similar approach applied Petrov and Velchev (1980) in the definition of "factor of landscape diversity", only that they use the perimeters and areas of individual units.

Buhyoff (1986) developed statistical models for predicting the beauty of sight to the trees and within them. The same issue is addressed by Colvin (1973). He introduces

an indicator called "sculpture of the green forms" which examines the spatial structure of tree-distances, but uses only visual criteria.

Brown and Daniel (1986) determine the aesthetic value of tree-distances using data from forest taxation. In their method landscape value is increased by the presence of highest trees, the existence of a group structure, the absence of fallen and rotting trees, and the existence of "living" soil cover.

To determine the aesthetic value of landscapes is developed the method of Daniel and Vining (1983), where subject to an assessment is the vegetation visual diversity. Scales of aesthetic landscape assessments have been developed by Briggs and France (1980), which are based on: location and forms of relief, a combination of volumes and plant groups. Eringis and Budryunas (1975) use the following indicators: total gravity landscape; expression of relief, spatial diversity of vegetation, diversity and relevance of anthropogenic sites.

Bulev (1977) carried out an assessment of the aesthetic environment at regional level and local level. Indicators used include: relief conditions; mosaic pattern of vegetation, visual spatial relationships, architectural landmarks, protected natural areas and others. Stoycheva, M. (2016) and a number of other authors used computer simulations of landscapes for their aesthetic evaluation.

In conclusion, we can say that the attempts made to establish the psychological effects of different categories of visitors to the compositional elements and environmental conditions for relaxation (volume plant, flowers, water areas, architectural park elements, open spaces, panoramic views, etc.) have not made generally valid findings. It is impossible to formulate what all people can subjectively like in their surrounding space. However it seems pretty clear, how the landscape image remains in their minds, namely through visual memories for expression of relief, herbal and other natural and anthropogenic components of landscapes.

Methods

Open spaces around the monuments provide the best opportunities for visual perceptions of tourists and analysis of landscapes in terms of landscape architects. There, the field of surveillance is the most spacious and gives a good choice of perspective. Since each level of monitoring we have a different horizon and a different distance to a pictorial plane. This determines as important different plans in space. The main purpose of this research work is to point out the importance of plant design of historical and cultural monuments in the landscape. Every model of visual preference must be set within its theoretical context. The authors believes that individuals have shifting visual preferences and that the judgments which people make are principally colored by their cultural background, active purpose and geography. The idea of a universal all-purpose all-condition preference scale seems to be an empty one. The cultural context question was well stated by Kluckhohn and Murray (1967): "Every person is like all other persons and very person is like some other persons, and every person is like no other persons". Althow the period of research is very short, investigated factors are significant in terms of visual perception of studied objects. The relevance of the research is particularly accurate today when cultural heritage is becoming a tourist product.

Results and discussions, including research limits and advantages

In this part of the study are used pictures to comment the impact of vegetation. Through comparisons are presented both positive and negative effects caused by vegetation around monuments. The comments are made of the most common reasons, because it is difficult to systematize some subjective sense of aesthetics.

Figure No. 1 Monuments highlighted by vegetation that enhances their effect



Source: Made by the authors.

Figure 1 convinces us that vegetation affects particularly strong creating a contrast in color terms, and thus allowing the monument to stand out in space and to be seen more easily and to be highlighted more convincingly. Bushes blooming in bright colors and trees with contrasting crowns make monuments to point out and turn them into an accent as it is shown on the two photos above. Photo on the left is from the Rila Monastery. The plaque affixed to the facade of the church would go unnoticed without these beautiful flowering shrubs planted deliberately to it. Left picture shows the bust of a Bulgarian General participated in the First World War. Here the vegetation serves as a suitable backdrop for sculpture. The two photos below illustrate the positive impact of vegetation that copies the general form of sculpture in city parks. Plant volumes should match the volumes in sculptural elements. In these cases, the vegetation is not a background but compositional addition to the monument himself. When the artistic principle of unity and contrast is applied in practice in shaping the spaces around the monuments the results are positive.

Due to the complicated socio-economic and political conditions in Bulgaria many historical monuments lost their importance and are now neglected. Figure 2 shows the negative effect that causes a poor maintenance of their plant environment.

Figure No. 2 Monuments existing in unsupported and neglected environment where inferior vegetation accidentally has come around monuments



Source: Made by the authors.

In many settlements of Bulgaria the municipal authorities do not have sufficient funds to maintain city parks in general and in particular the sculptures and monuments in them. This is clearly illustrated in Figure 2 where inferior vegetation that accidentally has come around monuments creates repulsive and unacceptable imagery of large areas.

In figures 3 and 4 we can see how important the spatial distribution of vegetation in the surrounding area of the monument is. In some cases the vegetation diminishes and "blurs" the architectural volumes of monuments and instead to focus on themselves incorrectly located vegetation distracted gaze or concentrate it in other directions. As seen on the left picture in Figure 3 monuments situated but not harbored in the plant environment do not have a convincing effect because they are "lost" in space and may even go unnoticed by those who pass by them. In the best case, such sculptural elements in a park or forest area appear much smaller than they are and cannot play the role of accents, which is normal for such items. In the case illustrated on the right picture the focus undoubtedly been effectuated, but there does not realized the background, which is required in sculptural figures that would not be seen from behind.

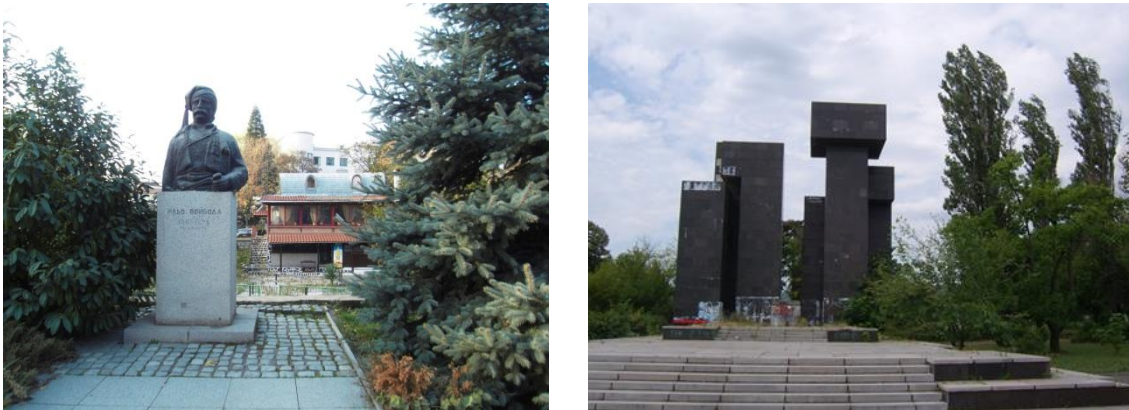
Figure No. 3 Monuments situated but not harbored in the plant environment



Source: Made by the authors.

Figure 4 shows some negative effects of improperly disposed vegetation in the surrounding area of monuments. The left picture shows the case of improper fixation of attention on insignificant objects in the background instead on the sculpture of famous historical figure itself. The image on the right shows an incorrect spatial composition of vegetation competing volume of artistic sculpture and unconvincing framed by both sides.

Figure No. 4 Monuments where the plant arrangement does not contribute to their announcement



Source: Made by the authors.

There are monuments that have existed for years and even centuries. In cases where around them is planted lasting high tree (Figure 5), it "outgrows" monument itself and begins to compete with its size and even surpasses it and shifted or hidden from view of the observer. It is recommended in such cases the monument to be moved to a new location, if it is possible. Thus its impact will be restored, and vegetation will be preserved if it is valuable.

Figure No. 5 Cases where vegetation strongly compete and decreases the impact of the monument



Source: Made by the authors.

Sometimes the trees themselves or other vegetation act as monuments (Figure 6). They may be old trees in urban environments and even already dead trees, which for decades were symbolic element in the local community and now are left to remind about it. It is appropriate for them to survive for some time while under the influence of natural conditions they rot. In most cases such trees have conservation status, besides being impressive. They are also “witnesses” to past events and therefore have an important historical significance and exist in the architectural framework of central areas or pedestrian zones of cities, making them the undisputed highlight in space. They are often surrounded by decorative pavements but when they are within vegetative areas they should be concisely shaped by flowers or grass.

Figure No. 6 Cases where the vegetation itself is a monument

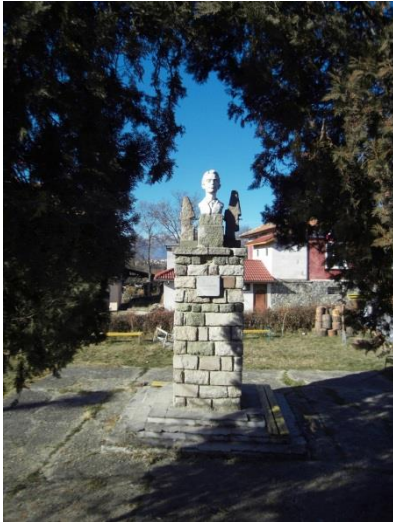


Source: Made by the authors.

In all cases however, their architectural or vegetable environment should not compete with them in terms of size, shape or color.

As well as any other focus of the urban or natural environment the monuments should be placed in an appropriate and consistent visual frame (Figure 7). This framework or frameworks are essential for their full acceptance by all sides that are expressive or intended for exposure. Therefore, the frame itself may be different, ie unilateral, or on both sides, and sometimes even closed, for example from all sides. In almost all cases, the visual framework of the monuments in the world is being built with tree or other decorative or natural vegetation.

Figure No. 7 Well framed monuments in visual framework



Source: Made by the authors.

Besides the visual framework it is very large the importance of background on which a monument stands more or less spectacular. Usually this background is provided by decorative plants too (Figure 8). The most spectacular are the monuments that stand in front of a contrasting background made of decorative trees or shrubs or flowers. In forest areas and rural landscapes vegetation that forms the background of the monument is natural, which of course is completely normal. In terms of the urban environment more suitable are ornamental plants with subspecies selected for the needs of architectonics.

Figure No. 8 The background that monuments stand out is of great importance for their impact



Source: Made by the authors.

Sometimes the background instead of helping to highlight the monument causing the opposite: neglected and demeaned or "hidden" it from the view (Figure 9). This happens when there is no a good compositional conception in the plant design of the landscape of monuments. The left picture shows the case of clumsily constructed plant environment. Despite the very good planned composition of alley network the effect of the monument is negative where the volume-spatial composition is unfortunate built. The image on the right shows an incorrectly situated monument in too confined space where there is no space for vegetation. In the case lacks both planned and plant composition. It is recommended that such monuments to be moved in appropriate place where would be able to build adequate landscape design. Therefore it is very important in the design of monuments to take into account the need for appropriate plants to allow the monument to appearances. Once there is a concept of landscaping remains only to use appropriate plants for background creating or use the existing vegetation for this purpose.

Figure No. 9 Unfortunate created background of vegetation that "fade" the monuments and their emotional impact is small



Source: Made by the authors.

Figure 10 shows some positive examples of successful backgrounds built behind the monuments. The contrast is basically for a spectacular display of monuments and this is achieved relatively easily, even using the natural vegetation with good knowledge of the morphological features of plants and their phenological events. On the left image a sculptural group is placed in a natural forest environment in the periphery of the meadow and there are some fruit trees. The adjacent picture shows a monument which is situated in a city park.

Figure No. 10 Successfully created background of vegetation in front of which convincingly stand monuments and their impact is highly



Source: Made by the authors.

The question of vegetation quantitative saturation around a monument is very important and difficult to answer. Life shows (Figure 11) that it can be achieved a positive effect and great expressiveness even with a small amount of plants, especially in urban environments where spaces for vegetative areas are limited, especially in central areas of

major cities. The presence of a small-vegetation there is greater due to the close distance from which they are observed.

Figure No. 11 A small amount of vegetation sometimes helps to increase the impact of monument



Source: Made by the authors.

The impact of some monuments depends on the location of the observer (Figures 12 and 13). On figure 12 both pictures show the same monument, but are made from different sides to illustrate various effects and impacts of the monument depending on the location of the observer.

Figure No. 12 Various effects and impacts of the monument depending on the location of the observer



Source: Made by the authors.

On figure 13 both pictures show the same monument too, but are made from different distances where detail comes to the fore.

From some perspectives vegetation might played absolutely no role, and from other points of observation to exert a decisive influence on the effects of the monument. Even those trees located at considerable distances from the monument can significantly influence the visual perception of the monument. For a compositional understanding of such complex spatial relationships it is need a comprehensive landscape design project for the area around the monument.

Figure No. 13 Various effects and impacts of the monument depending on the observation distance



Source: Made by the authors.

Conclusions

The trees and other vegetation located around monuments can play an important role in increasing of cultural and historical monuments' impact in the landscape. In some cases they can increase significantly this impact. On the other hand trees, shrub and invasive vegetation can destabilise the impact of some monuments and decrease their nobleness and gravity.

Artistic process during landscape design always requires creating spectacular views until we get the whole picture in particular as regards of a monument. Within an urban environment we have to comply strictly with the architectural framework, but in rural and forest areas we have to make much more using vegetation as a means of expression and to take into account a lot of principles and know morphological and environmental features of ornamental plants.

In order to make the design project more adequate to the monument and to ensure opportunely construction of an acceptable environment around it is advisable to use existing tree groups and massifs, which immediately or after a partial reconstruction could assume the functions of the relevant part of the perspective view. In this case, some essential principles, combining parts of park perspective methods and spatial composition can make design process much meaningful and the resulting monument exterior more picturesque and attractive. Such principles must be sufficiently simple, fast and effective to provide an aesthetic landscape design.

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